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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/587,394	06/05/2000	Raoul Florent	PHF 99,548	8430

24737 7590 05/08/2003

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EXAMINER

PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/587,394

Applicant(s)

FLORENT, RAOUL

Examiner

Shefali d Patel

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because the box elements in Figures 1 and 5 needs to be labeled in accordance with 37 C.F.R. § 1.83(a) as stated infra. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specifically, 37 C.F.R. § 1.83(a) states that “the drawing in a nonprovisional application must show every feature of the invention specified in the claims. However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g., a labeled rectangular box).”

Specification

2. The disclosure is objected to because of the following informalities:

a. On page 3 lines 31-32, the recitation of claim 1 and 14 is improper since the claim numbering might change during prosecution.

b. Filiation Front Marching Technique is referred to as FFM on page 5 line 26.

Hence, when referring to this technique again in the specification, either the full or short form should be used, NOT both. For example:

i. Page 5 line 28

ii. Page 6 lines 3, 15-16

iii. Page 5 lines 5, 8-9, 15, 19-20

- iv. Page 10, line 23
- c. On page 7 line 15, "Font" should be changed to "Front"
- d. On page 8 line 31, first occurrence of "FAR" ought to be "Far"
- e. On page 12 lines 25, 26: "0,9" and "0,5" should be "0.9" and "0.5", respectively because line 24 states $0 < \alpha < 1$.
- f. On page 13 line 18, Eq. 6B, $DX_{SP(K-1)}$ should be $DY_{SP(K-1)}$
- g. On page 13 line 21, Eq. 7B, $DX_{LP(K)}$ should be $DY_{LP(K)}$

Appropriate correction is required.

Claim Objections

3. **Claim 14** is objected to because of the improper hybrid claim language. An application containing a hybrid claim wherein, for instance, a product is defined merely in terms of the process for producing it. See MPEP § 705.01(e), situation (A). Where claims are directed to the same character of invention but differ in scope only, prosecution by Patentability Report is never proper.

Appropriate correction is required.

- 4. Claim 3 is objected to because it includes reference characters (L_k), which is not enclosed within parentheses on page 16 line 5.
- 5. Claim 10 is objected to because it includes reference characters (A), which is not enclosed within parentheses on page 18 line 5.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claim 3** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the function" in claim 3, page 16 at line 1. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 7 states a method of claim 1, "wherein: besides taking Local Events into account, ..." However, claim 1 does not mention Local Events.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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10. **Claims 1-15** are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is not clear from the specification how the threadlike structure has been extracted from the original image as disclosed on page 3 lines 1-7. Furthermore, it is not clear how the “Best Path” is obtained (from abovementioned threadlike structure) as mentioned in claim 1 line 9 and on page 7 lines 12-14. Applicant discloses that the “Best Path” is obtained by the second processing phase by “backtracking operation” on page 7 line 14. However, backtracking operation is never disclosed in detailed for one of ordinary skill in the art to understand the process of obtaining the “Best Path.” Applicant refers to these processing phase and the “Filiation Front Marching technique” with respect to Figures 2A to 2C on page 7 lines 22 to page 11 line 23. Nevertheless, the claim language is yet unclear from the specification at least for the details of the Filiation Front Marching technique. The relationship between the “City Block Distance” (claim 2 line 21) and the “Cumulated Costs” (claim 2 line 23 and claim 12 line 27) is also unclear from the specification.

Specifically, **claims 5 and 6** mentions “predetermined limited temporal spans” on page 19 lines 22 and 27, respectively. This is also unclear from the specification as the “predetermined limited temporal spans” are disclosed on page 12 lines 7-10.

Claims 5 and 8 mentions “Local Events” and “Global events” on page 16 line 23 and on page 17 lines 10-11, respectively. This is not understandable from the specification as these features are disclosed on page 12 lines 13 and 29.

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NOTE: The examiner's understanding of the claimed feature "Filiation Front Marching technique" is nothing but a modification of a "Fast Marching Level Set Method" of Sethian (disclosed in Information Disclosure Statement). Hence, the claims are rejected based on this understanding.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sethian ("A fast marching level set method for monotonically advancing fronts, " Applied Mathematics) in combination with Ito (USPN 5,067,166).

Sethian discloses a method of extracting points of a path following a threadlike structure formed by a grid of points (page 1592, column 2 lines 10-16), comprising: a first processing step of performing a first path-tracing operation for supplying at least one points denoted fathers (i.e., smaller values) and corresponding Children (i.e., larger values) of the threadlike structure starting at start point until end point of said grid is reached at page 1593 column 1 last paragraph to column 2.

However, Sethian does not expressly disclose a second processing step of performing a second path-tracing operation for supplying Best Path by back propagating at the End Point and going thru all the determined Children until the Start Point is reached.

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Ito discloses a pattern recognition method using Dynamic Programming (DP) that has a step of processing that back tracks variables (points) starting at the End point (k) and going thru the determined Children (i) until the Start Point (a) is reached, to supply Best Path at column 8 lines 29-32 and column 9 lines 5-13.

One of ordinary skill in the art would have been motivated to have the processing step of Ito for back tracking the branch (structure) to select the best path so that the access path with the minimum distance can be detected reletatively fast by determining best branches as suggested by Ito.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 4566124 – Pattern reading system that traces points by back propagating, column

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USPN 4052620 – Method and apparatus for improved radiation detection in radiation scanning systems.

USPN 4875165 – Method for determination of 3-D structure in biplane angiography.

USPN 6278918 – Vision guidance system that tracks points to the origin.

USPN 5293574 – Digital x-ray imaging system with automatic tracking

USPN 4692864 – method of determining stenosis of blood vessels.

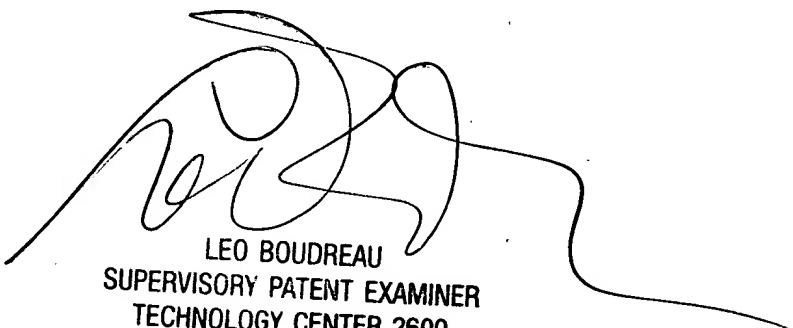
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali d Patel whose telephone number is 703-306-4182. The examiner can normally be reached on M-F 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 703-305-4706. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

Shefali Patel
April 22, 2003



LEO BOUDREAU
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